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STATE OF UT
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
Utah Water Pollution Control Committee

150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

Septmeber 14, 1984

Calvin K. Sudweeks
Executive Secretary
Rm 410 (801) 533-6146

RECEIVED

SEP 18 1984

DIVISION OF OIL
GAS & MINING

Re: Construction Permit WSM and
Noranda Expl. Inc. TUG Mine,
Box Elder County, Heap Leach
Project

Dear Mr. Roggenthen:

We have reviewed the plans and specifications for the above referenced project. We find them to be largely in compliance with the Utah Wastewater Disposal Regulations. Therefore a construction permit as constituted by this letter is hereby issued subject to the following conditions:

1. The pad preparation, pond preparation, clay liner, and leak detection lines must be inspected by representatives from this Bureau prior to installation of the final synthetic liners. Also, the installed liner and agglomerated ore must be inspected by representatives of this Bureau prior to placement of the leach ore and the start of operation.
2. Quarterly reports of the daily monitoring of the leak detection lines must be made to this office. The system is to be checked daily for the appearance of fluid and analyzed when any appears. The result of the observations and sample analysis are to be kept in a daily log which will be available for onsite inspection by this office or other agencies.
3. The sanitary system consisting of a septic tank and drainfield must be approved by the Bear River District Health Department prior to installation and use.

It is our understanding that the TUG joint venture will consist of a surface mine located northeast of recovery buildings and leach pads. The leach pad will have a double liner with a 6" clay base compacted to less than a 10^{-6} cm/sec permeability. A leak detection line will be set in the clay liner and covered with gravel on the down gradient side of the leach pads. The leach pads then will be covered with a 20 mil PVC liner joined to a hypalon liner where it will be exposed to sunlight. These synthetic liners will cover all of the leach pad area.

Mr. Bob Roggenthen
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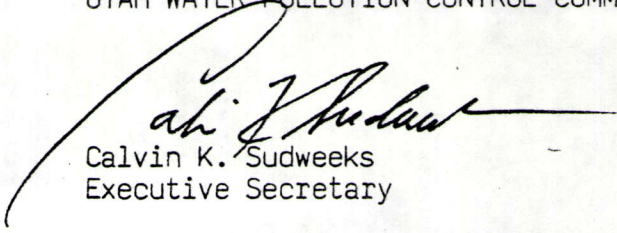
The pregnant and barren solution ponds will have a double liner with a 20 mil PVC on top of a prepared base followed by a layer of sand and small gravel with a 36 mil hypalon liner on top. A leak detection, slotted pipe line will be placed along the deepest point in the coutoured pond bottom between the two liners. Any leakage will flow to this line and along it to a monitoring sump outside of the pond from which water sampling and observations can be made.

Should a leak be detected the company will immediately proceed to shut down the pad or pond operation and repair the leak. ~~The nearest ground water is below 200 ft. from the surface as demonstrated by well logs. No monitoring wells will be required but must be installed down gradient if substantial leaks develop to detect the impact of the leach fluids.~~

The project life will be through the first quarter of 1989 and will involve parts of 6400 acres of land in T8N, R19W in Box Elder County. If there are questions regarding this permit or its conditions please contact Brian Nelson of this office.

Sincerely,

UTAH WATER POLLUTION CONTROL COMMITTEE



Calvin K. Sudweeks
Executive Secretary

BLN:pa

cc: Bear River Dist. Health Dept.
Division of Oil, Gas and Mining

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